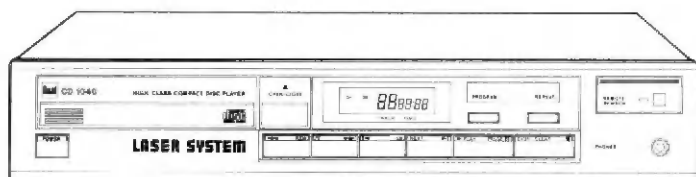


## CD 1040

### Service-Anleitung Service Manual Instructions de Service



Technische Daten <small>Meßwerte = typische Werte</small>	Technical data <small>Measured values = typical values</small>	Caractéristiques techniques <small>Valeurs mesurées = valeurs typiques</small>	CD 1040
Frequenzbereich $\pm 0,5$ dB	Frequency response	Courbe de réponse	5–20 000 Hz
Geräuschspannungsabstand	Signal to noise ratio	Rapport signal/bruit	96 dB
Dynamikbereich	Dynamic range	Dynamique	93 dB
Übersprechdämpfung (1 kHz)	Crosstalk (1 kHz)	Diaphonie (1 kHz)	90 dB
Klirrfaktor (1 kHz)	Harmonic distortion (1 kHz)	Distorsion harmonique (1 kHz)	0,004 %
Gleichlaufschwankungen	Wow and flutter	Fluctuations	$\pm 0,001$ %
Ausgangsspannung	Output voltage	Tension de sortie	2 V
Max. programmierbare Musiktitel	Max. music title programming	Titres de musique au max. programmés	15
D/A Wandler	D/A Converter	D/A Convertisseur	16 Bit linear (Single)
Abtastfrequenz	Pick up frequency	Fréquence de pick-up	88,2 kHz
Abtastsystem	Recording system	Système d'enregistrement	3-Strahl-Laser 3-beam optical pick up
Leistungsaufnahme	Power consumption	Consommation	16 W
Netzspannung	Mains voltage	Tension secteur	220 V
Netzfrequenz	Line frequency	Fréquence secteur	50 Hz



CLASS 1. LASER PRODUCT  
LASER KLASSE 1  
APPAREIL A LASER DE CLASSE 1

Informationsetikett auf Geräterückseite.  
Explanatory label on rear side.

Laser:  $\lambda = 780 \text{ nm}$



CAUTION - INVISIBLE LASER RADIATION WHEN  
OPEN AND INTERLOCKS FAILED OR DEFEATED  
AVOID EXPOSURE TO BEAM

ATTENTION - RAYONNEMENT LASER INVISIBLE  
DANGEREUX EN CAS D'OUVERTURE ET LORSQUE  
LA SÉCURITÉ EST NEUTRALISÉE.  
EXPOSITION DANGEREUSE AU FAISCEAU.

VORSICHT -UNSICHTBARE LASERSTRAHLUNG.  
WENN ABDECKUNG GEÖFFNET UND SICHER-  
HEITSVERRIEGELUNG ÜBERBRÜCKT.  
NICHT DEM LASERSTRAHL AUSSETZEN!

Warnetikett innen im Gerät.  
Warning label inside the unit.

### Vorsicht

Das Gerät beinhaltet eine Laserkomponente, daher im Servicefall nachfolgende Hinweise unbedingt beachten:

- Das Gerät arbeitet mit unsichtbarer Laserstrahlung. Bei geöffnetem Gerät tritt unterhalb des Plattenhalters Laserstrahlung aus.
- Nicht in den Laserstrahl blicken.
- Hände und reflektierende Gegenstände nicht in den Laserstrahl bringen.
- Laserschutzbrille nach DIN 58 215 für die angegebene Wellenlänge tragen.
- Unbeteiligte Personen vom Arbeitsplatz fernhalten.

### Achtung

Die Einstellungen für den Laserstrahl am Laserabtaster und der LP-Platte dürfen nicht verstellt werden.

### Caution

This CD-player operates with an invisible laser beam. If service is necessary please pay attention to the following notes:

- When the set is open, laser radiation emerges beneath the record holder arm.
- Do not look into beam.
- Do not expose hands or reflecting objects into laser beam.
- Please wear laser protective glasses according to DIN 58 215 for mentioned wave length.
- Please keep unconcerned people away from working place.

### Attention

It is not allowed to adjust positioning of laser beam at laser scanning and LP-plate.

## Servicehinweise

### AUSBAU DER SCHUBLADE (A)

- Anschlagsschraube (B) herausdrehen und durch Drücken der Taste «OPEN-CLOSE» die Schublade ausfahren und mit der Hand ganz herausziehen.
- Wenn der Schubladenmotor nicht funktioniert s. Fig. 2.

### AUSBAU DES LAUFWERKS

- Die 2 Schrauben herausdrehen (s. Fig. 4).

### PLATTENWIEDERGABE OHNE SCHUBLADE

- Netzstecker ziehen, Schublade entfernen und anschließend Kurvenrad (C) in Pfeilrichtung bis zu der in Fig. 3a angegebenen Position drehen.

- Platte auflegen (D) und Kurvenrad (C) in der anderen Richtung bis zu der in Fig. 3b angegebenen Position drehen.
- Netzstecker wieder einstecken: die Wiedergabe kann erfolgen.
- Zur Entnahme der Platte, Kurvenrad (C) betätigen (s. Fig. 3a), um den Andruckarm (E) anzuheben, dann die Platte entnehmen.

### EINBAU DER SCHUBLADE

- Netzstecker ziehen, Kurvenrad (C) in Position bringen.
- Schublade ganz einschieben, Schraube (B) eindrehen, Netzstecker wieder einstecken.

## Service information

### DISMANTLING THE TRAY ASSEMBLY (A)

- After dismantling the front panel, take off the tray stopper screw (B), press the «OPEN-CLOSE» button to begin removing the tray, and pull it out.
- If the loading motor doesn't rotate (see fig. 2).

### REMOVING MECHANICAL ASSEMBLY

- Remove the 2 screws (see fig. 4)

### PLAYING A C.D. WITHOUT TRAY ASSEMBLY

- Unplug the unit, take off the tray assembly, turn the main gear (C) in direction of the arrow up to the position indicated in fig. 3a.

- Put the C.D. on the turntable (D) and turn main gear (C) in the other direction up to the position indicated in fig. 3b.
- Reconnect the unit at the mains. Playback can now occur.
- To take off the C.D. move the main gear (see. fig. 3a) so as to raise the counter-lever (E) and disengage the C.D.

### REPLACING THE TRAY ASSEMBLY

- Unplug the unit, put the main gear (C) in position fig. 3c.
- Slid the tray fully in, replace screw (B). Reconnect the unit at a mains outlet.

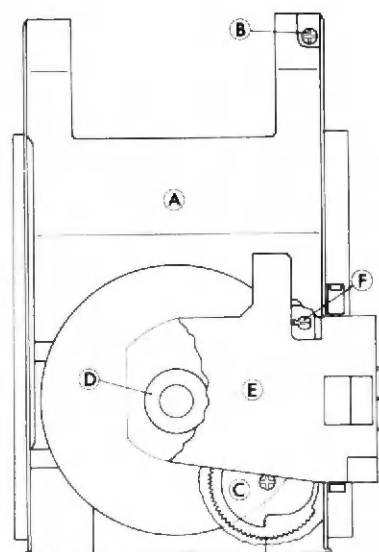


Fig. 1

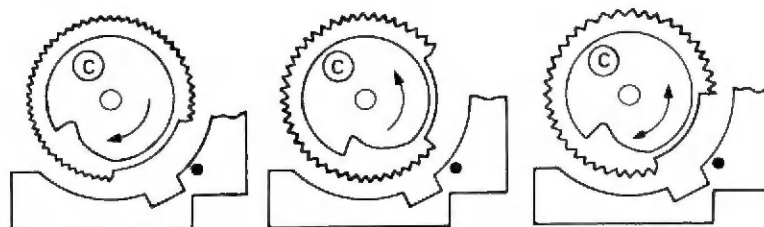


Fig. 3a

Fig. 3b

Fig. 3c

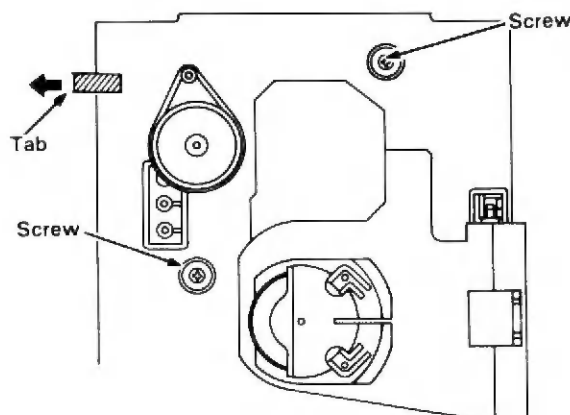


Fig. 4

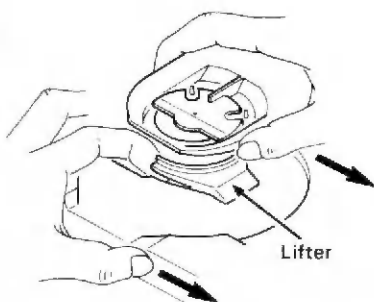
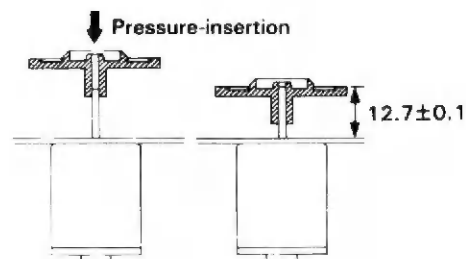
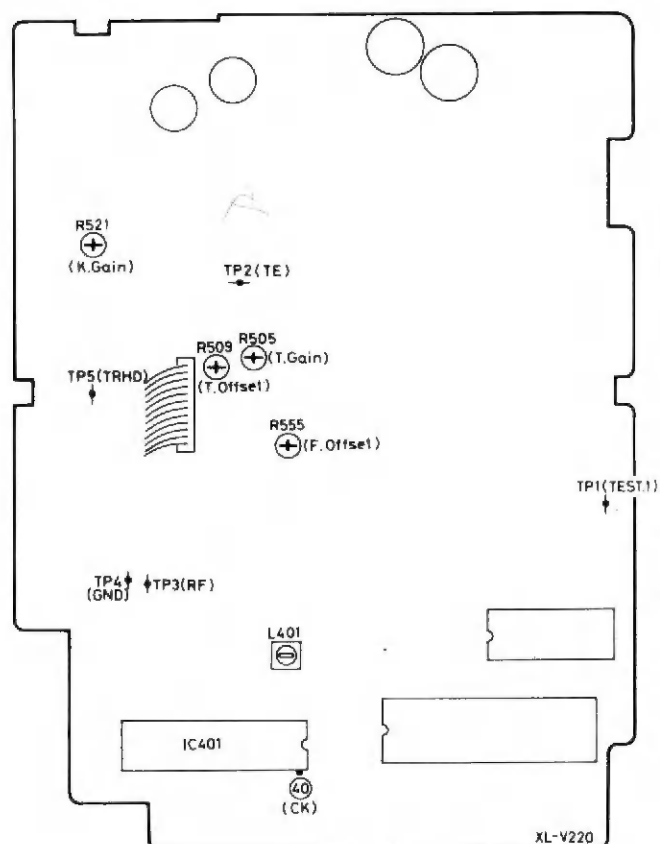
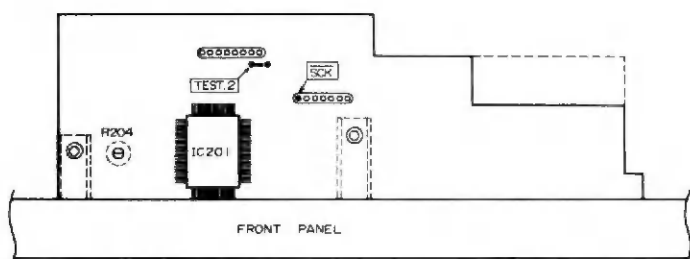
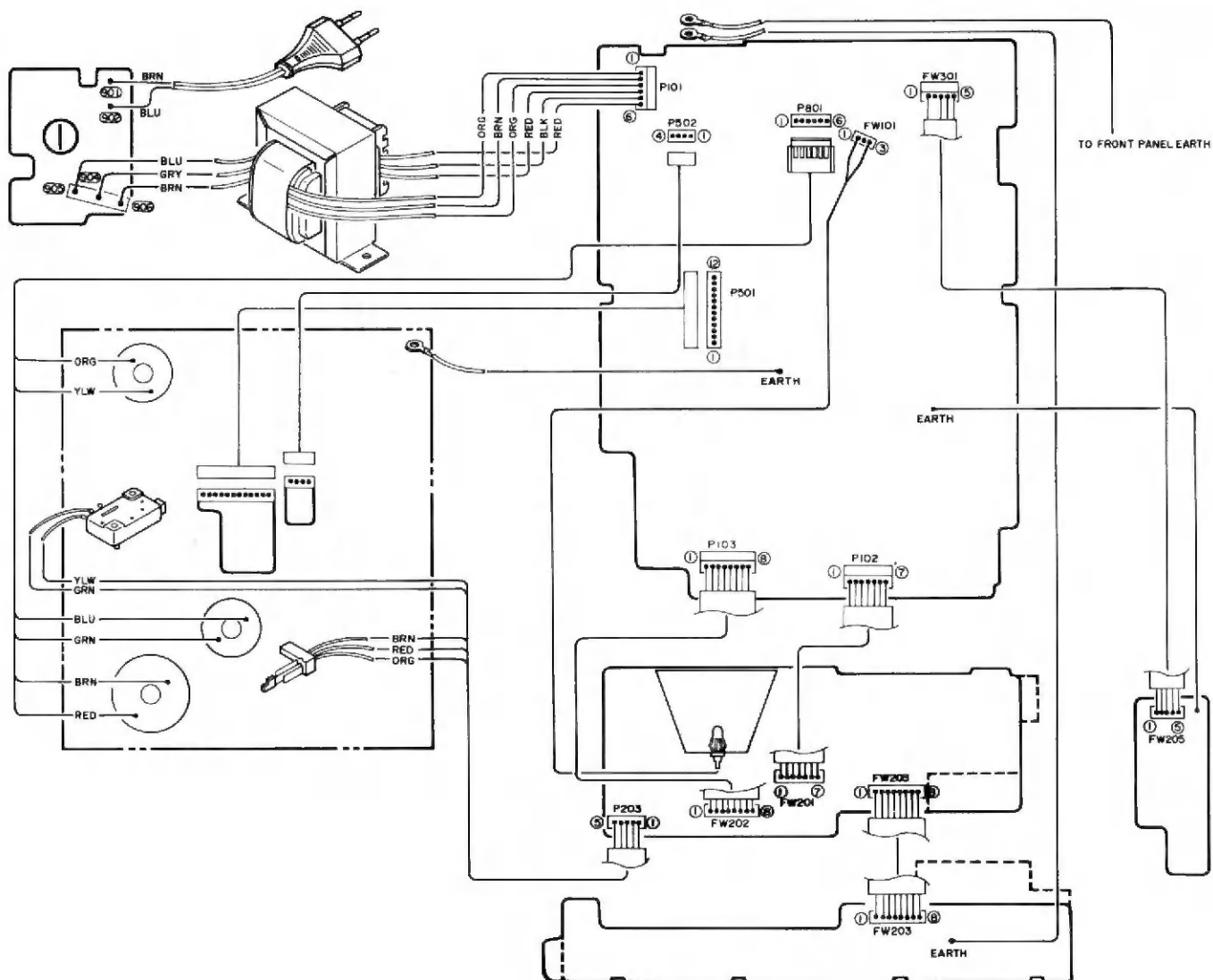


Fig. 2

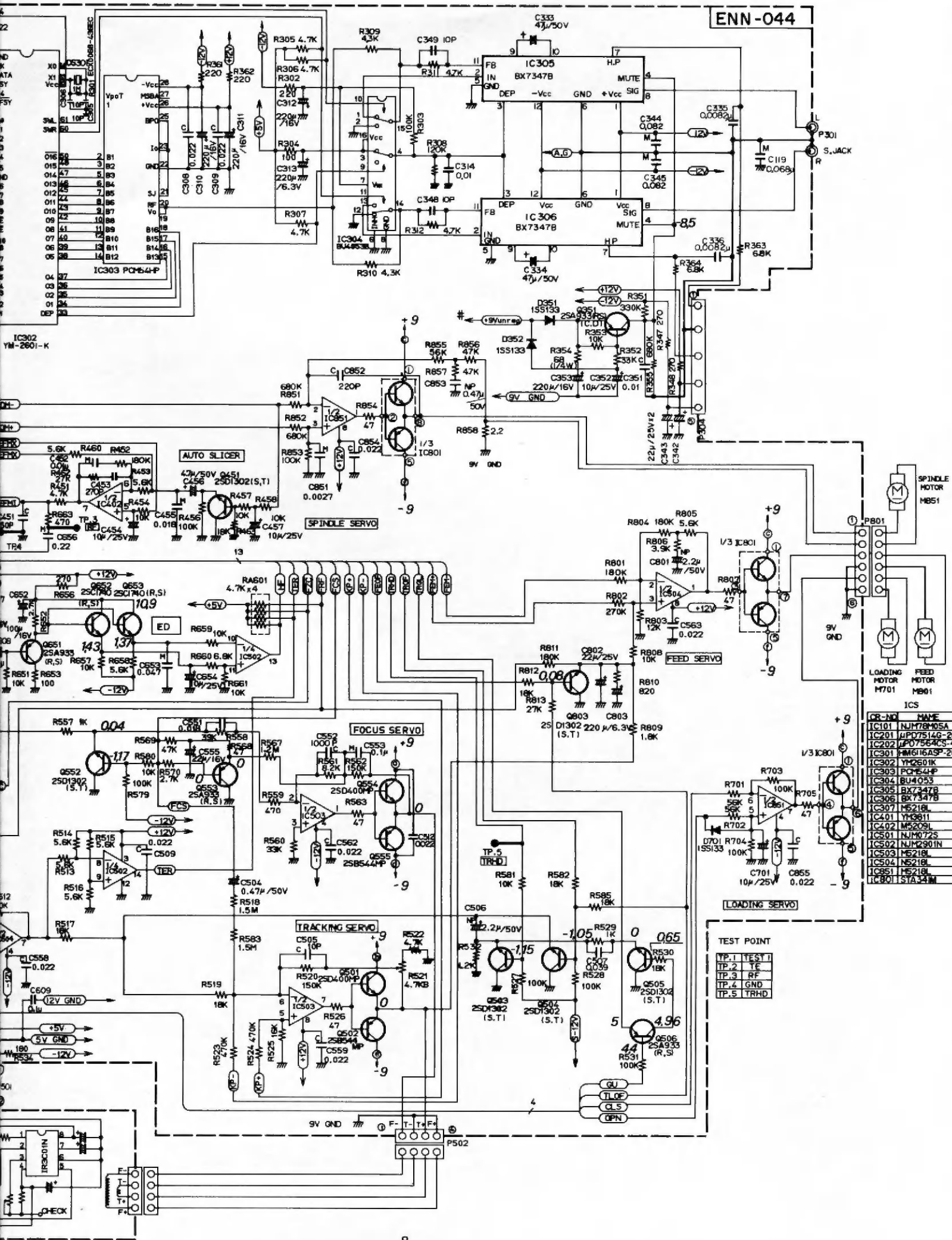




\* Wenn Vss < 1,7 V, ist die Laserdiode defekt.  
 Steller auf der Laserplatte nicht verstellen! (Fabrikeinstellung)  
 If Vpp < 1,7 V Laser diode is considered defective.  
 Don't touch the semifixed on the pick up R.C.B.  
 (adjusted by manufacturer)

LASER OUTPUT			
	Check Contrôle Kontrollieren	TP3	$V_{pp} > 1,7 V *$
PLL FREERUN (Battement libre du PLL)			
TP3	L401	IC401 pin 40	$F = 4,322 \pm 0,001 \text{ MHz}$
CLOCK FREQUENCY (Fréquence d'horloge)			
TEST 2	R204	FW201	$F = 200 \text{ kHz} \pm 4 \text{ kHz}$
Power off	Power on		
Y AXIS			
	Schublade entfernen Screw Vis Schraube  (fig. 1)	TP3	V maximum
FOCUS SERVO OFFSET			
	R555	TP3	V maximum
TRACKING SERVO GAIN			
TP1	R505	TP2	$V = 2 V_{pp}$
TRACKING SERVO OFFSET			
TP1	R509	TP2	$a = b$
KICK GAIN			
	R521	Emitter T 501	1. Max. Linksanschlag Max. Left-hand stop 2. minus 3 dB







IC402	▶	□
1	0,01	0,01
2	2,52	2,52
3	2,51	2,51
4	-12,9	-12,9
5	2,47	2,2
6	2,47	2,2
7	2,17	2,2
8	12,9	12,9

IC501	▶	□
1	12,9	12,9
2	0,01	0
3	1,93	0
4	1,93	0
5	-12,9	-12,9
6	0,01	0
7	0,01	0
8	0,04	0
9	12,9	12,9

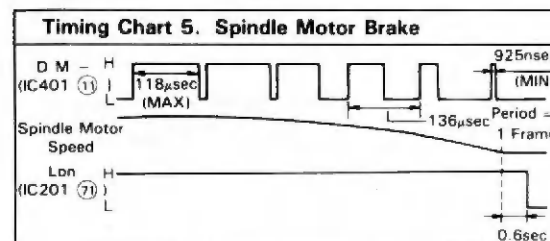
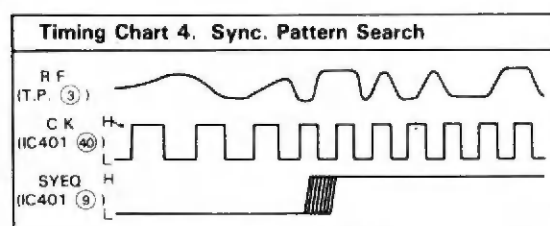
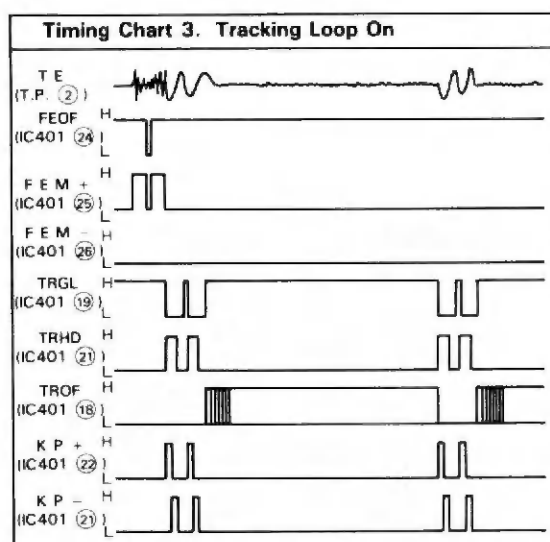
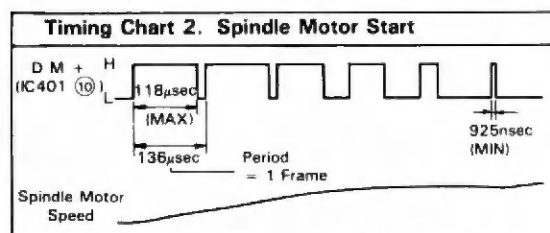
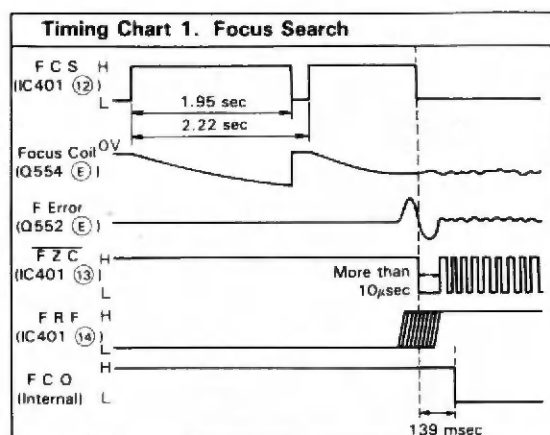
IC503	▶	□
1	-0,75	0,57
2	0	0
3	0	0
4	-12,9	-12,9
5	0	0
6	0	0
7	0	0
8	12,9	12,9

IC504	▶	□
1	1,23	0
2	0,07	0
3	0,07	0
4	-12,9	-12,9
5	0	0
6	0	0
7	0	0
8	12,9	12,9

IC801	▶	□
1	9,6	10,2
2	1,48	0,57
3	1,2	0,01
4	0	0
5	-10,6	-10,8
6	0	0
7	0,5	0
8	0,9	0,03

IC851	▶	□
1	1,5	0,57
2	0,05	0
3	0,05	0
4	-12,9	-12,9
5	0	0
6	0	0
7	0	0
8	12,9	12,9

IC502	▶	□
1	5	5
2	4,9	0,1
3	12,9	12,9
4	0,7	0,7
5	1,22	0,02
6	0	0
7	0,62	0,58
8	6,46	6,47
9	6,4	6,41
10	1,37	0,11
11	0,85	0,07
12	0	0
13	0,1	0,09
14	2,26	0,1



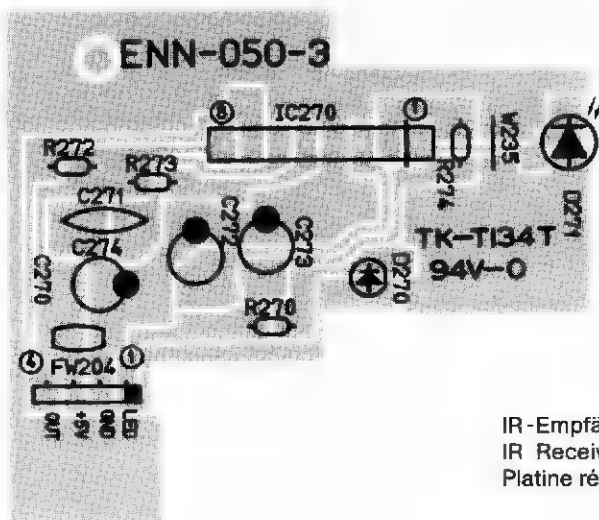
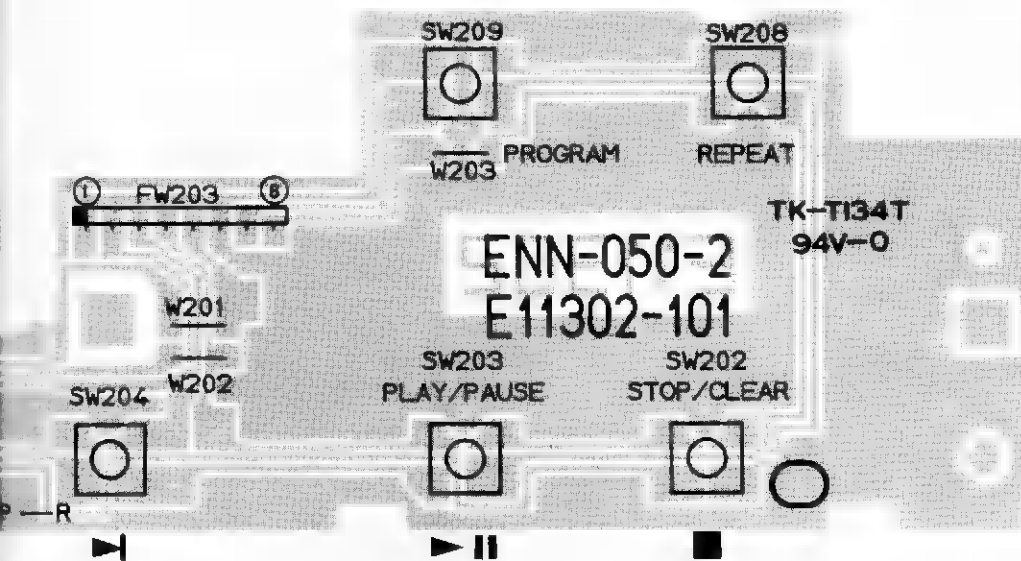
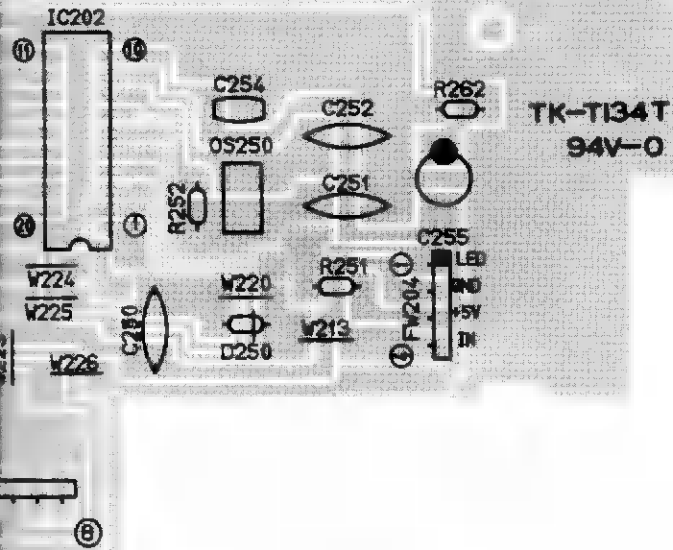
10 MΩ

▶ play

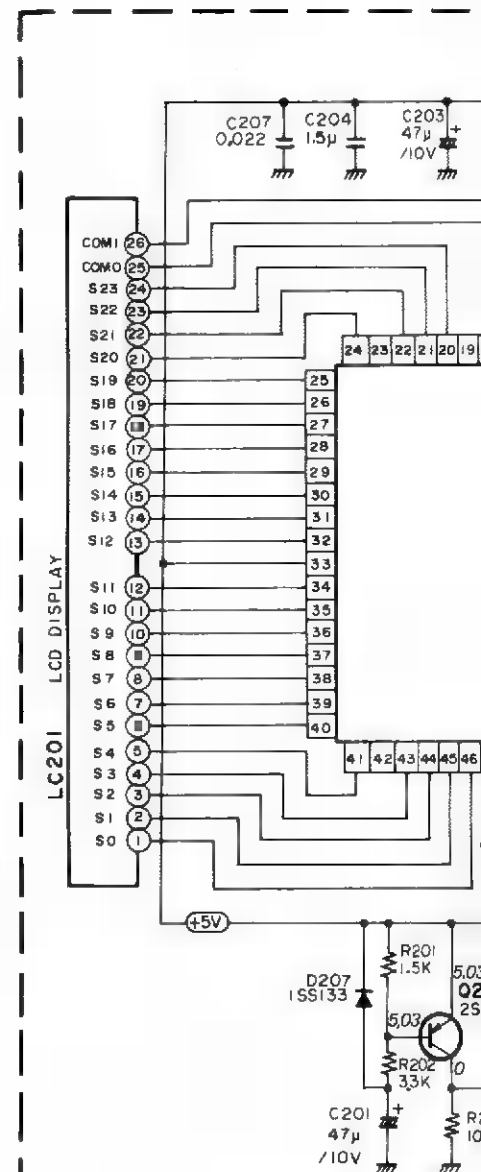
□ stop



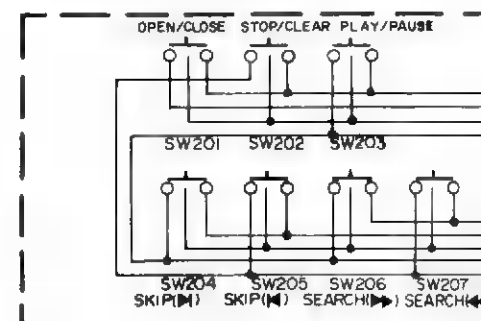
Anzeigeplatte  
Display / control board  
Platine afficheur / commandes

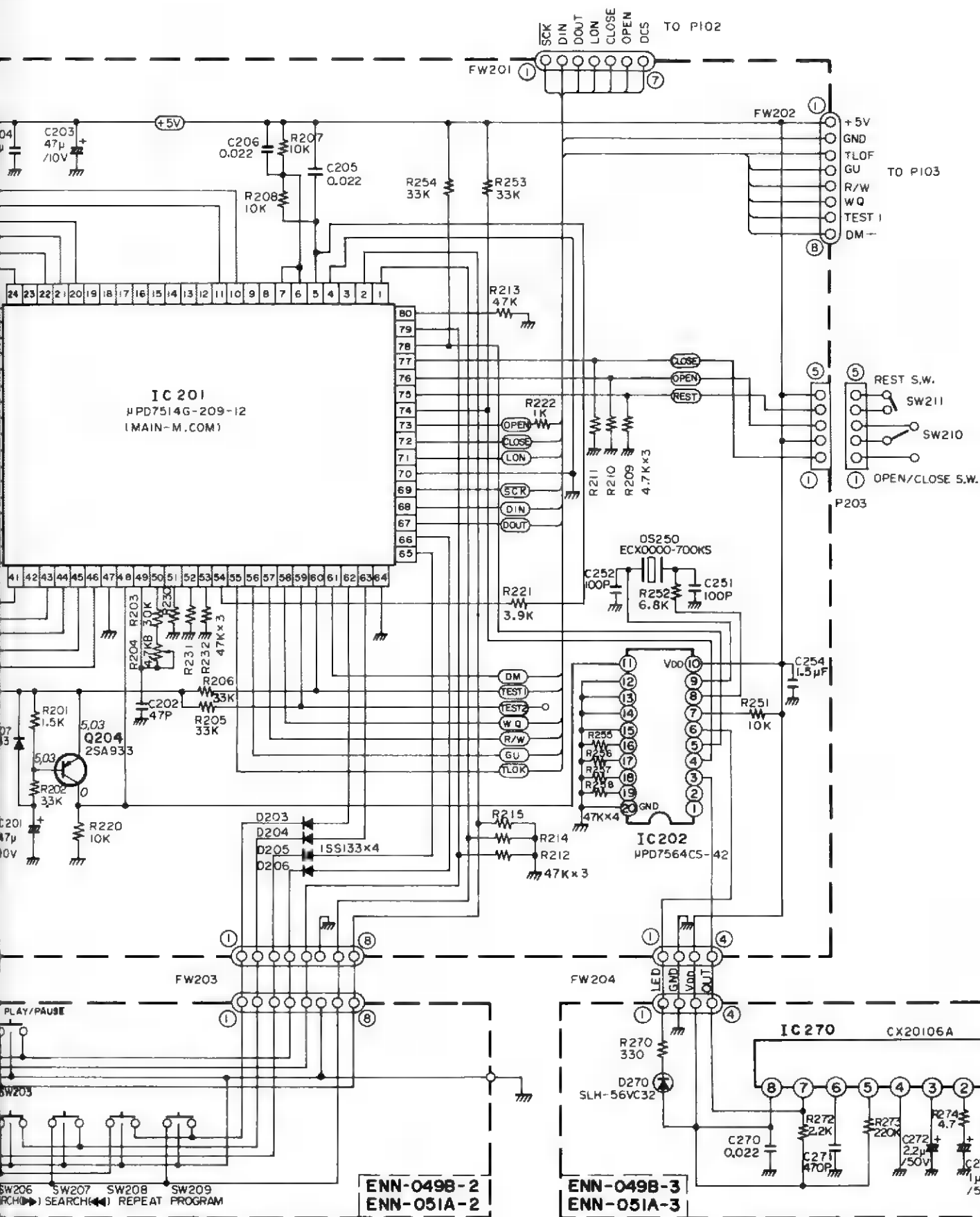


IR-Empfängerplatte  
IR Receiver board  
Platine récepteur IR

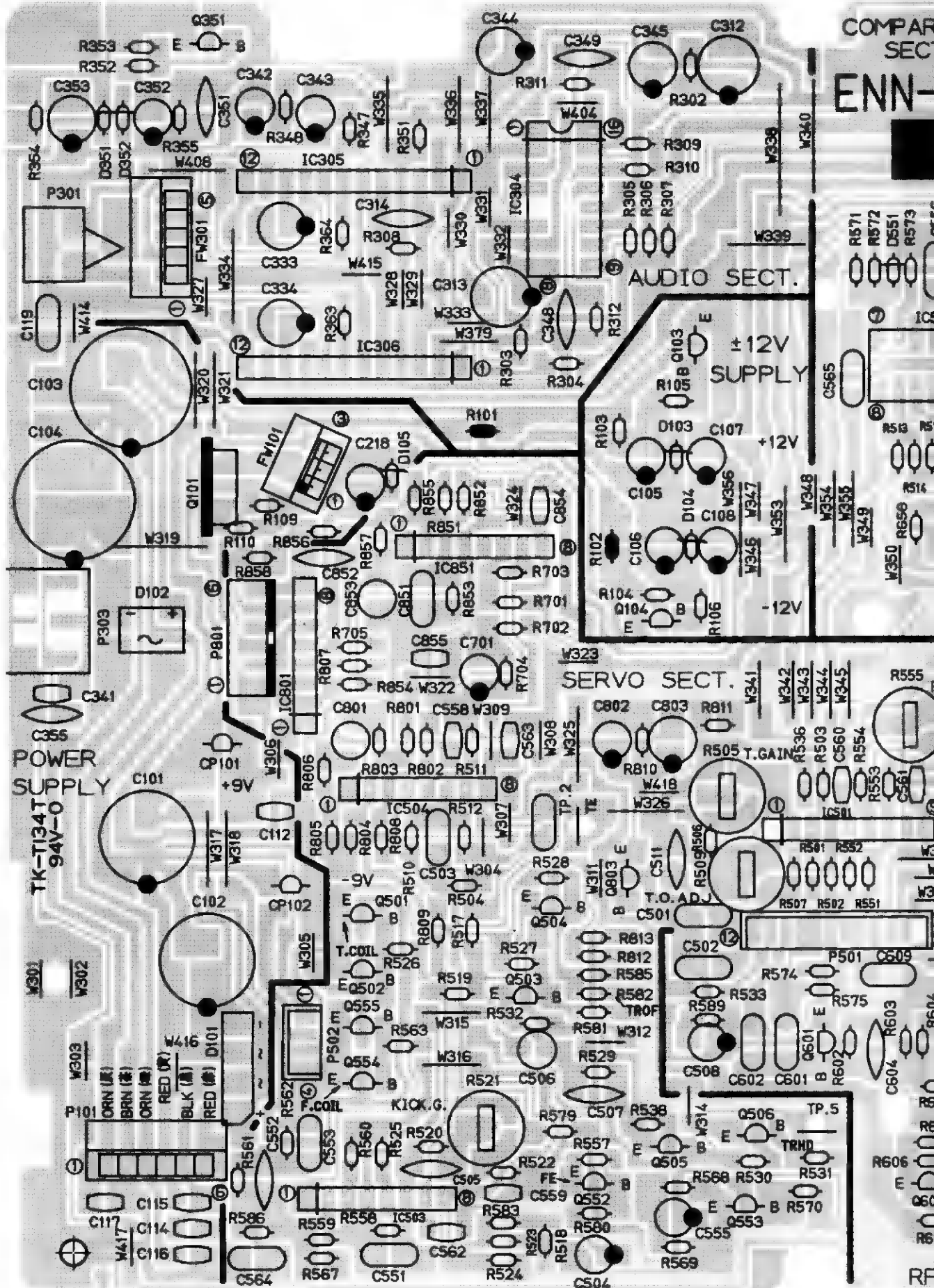


ENN-049B-1  
ENN-051A-1





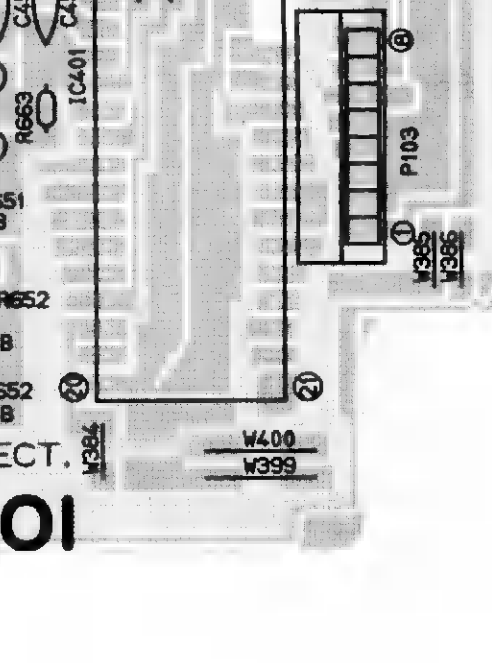
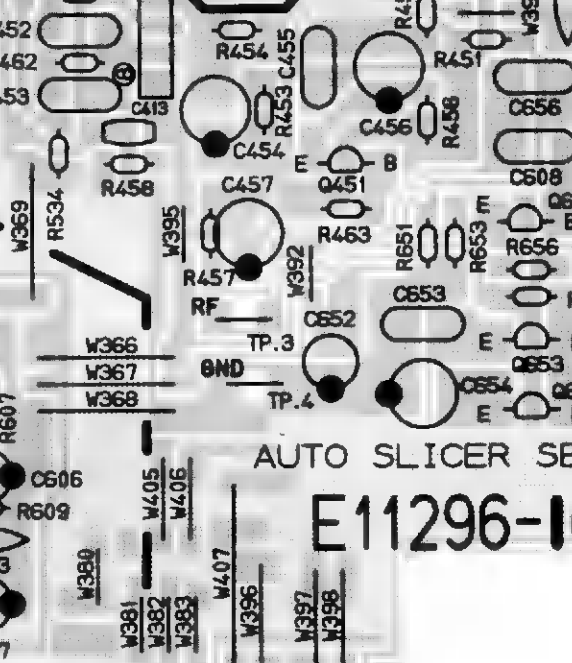
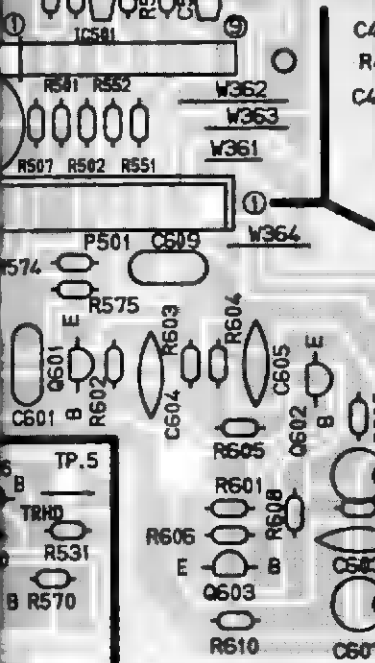
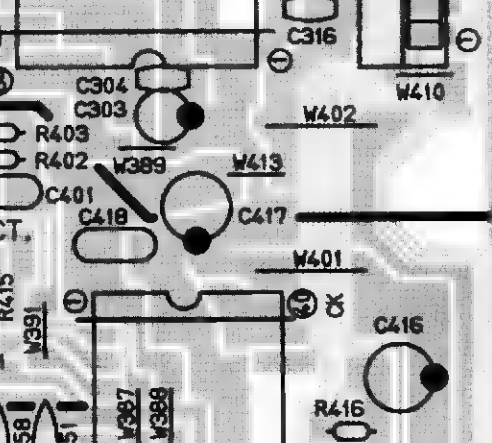
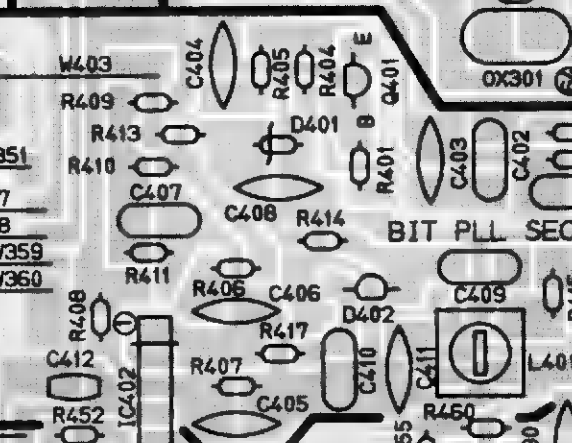
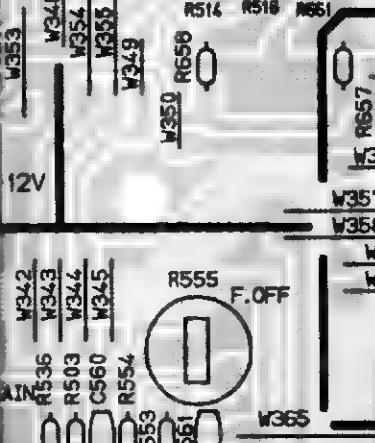
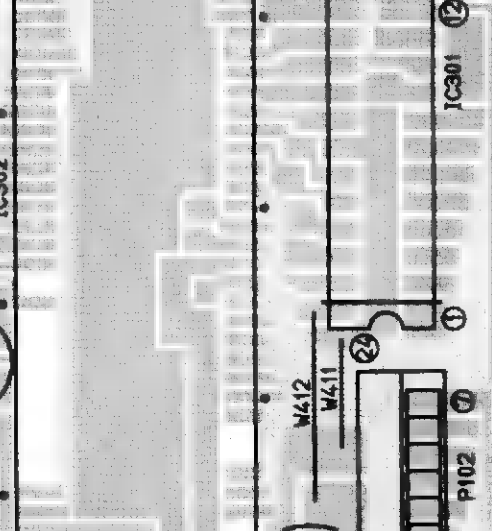
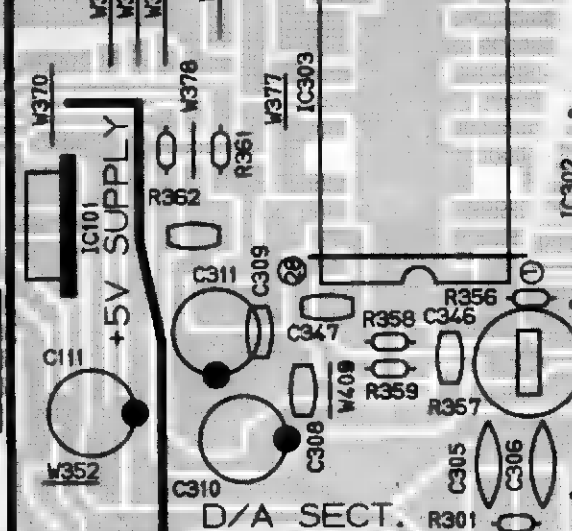
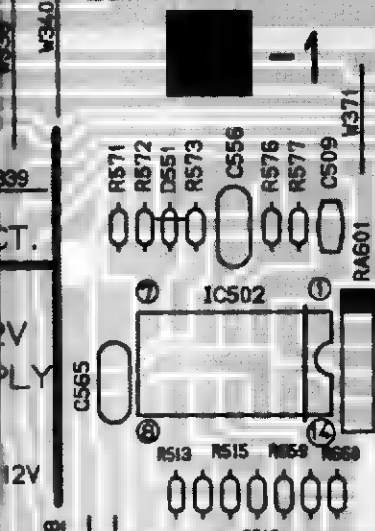
Grundplatte  
Main board  
Platine de base





# COMPARATOR SECT.

ENN-044

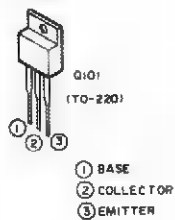


# AUTO SLICER SECT.

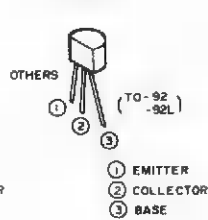
E11296-IOI

# RF AMP SECT.

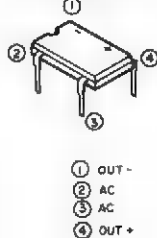
# TRANSISTOR



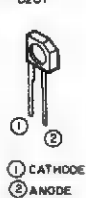
# TRANSISTOR



# DIGI, DIO2



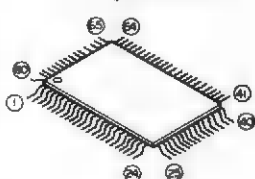
# PHOTO DIODE



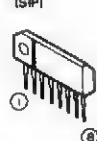
# IC101



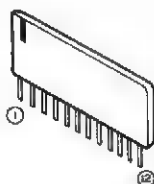
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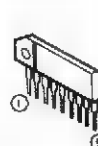
# IC270, IC402, IC503, IC504, IC851



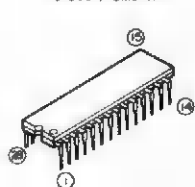
# IC305, IC306



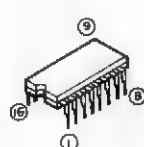
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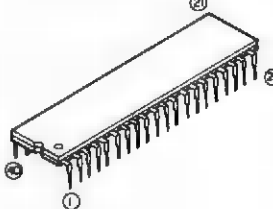
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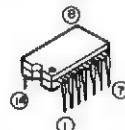
# IC304



# IC401



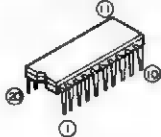
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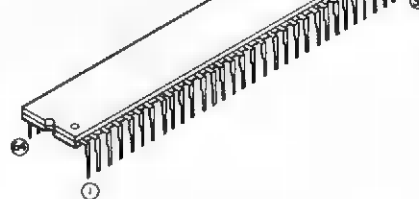
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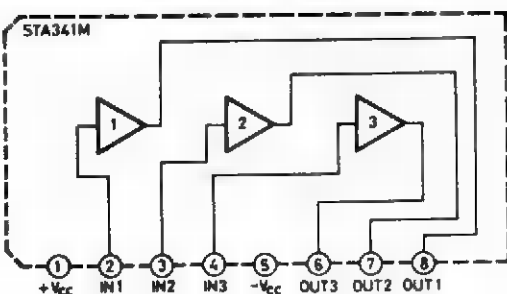
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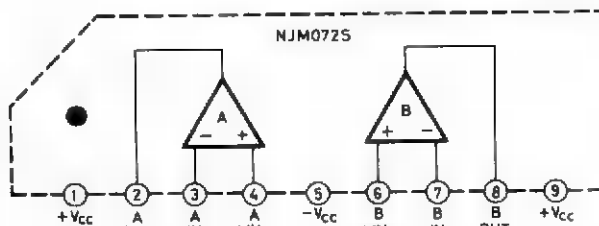
# IC302



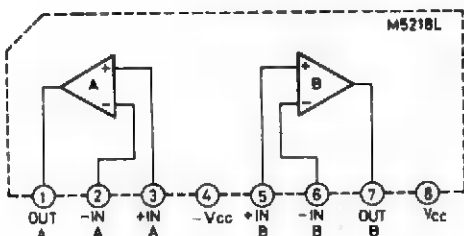
# IC801 Power op. Amp.



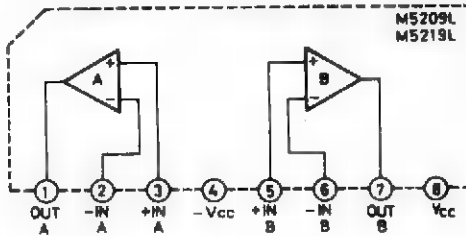
# IC501 Dual op. Amp.



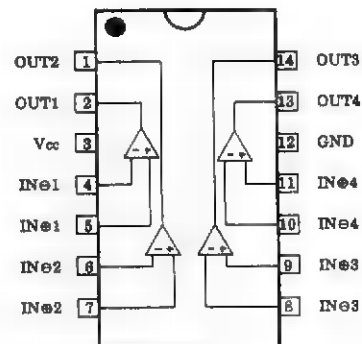
# IC281/307/503/504/851 Dual op. Amp.



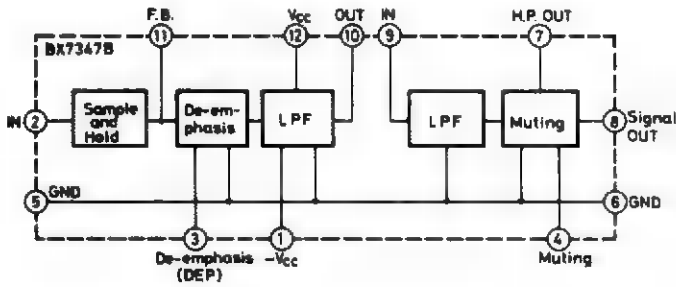
# IC402 Dual op. Amp.



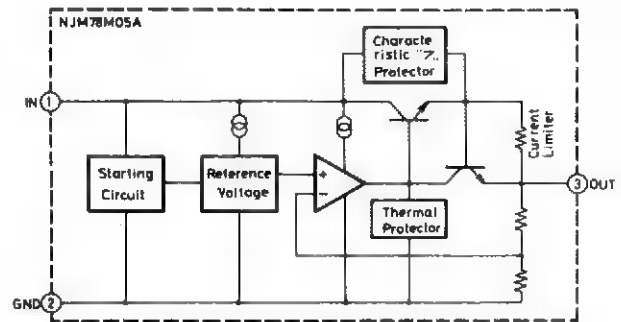
# IC502 Quad. Comparator



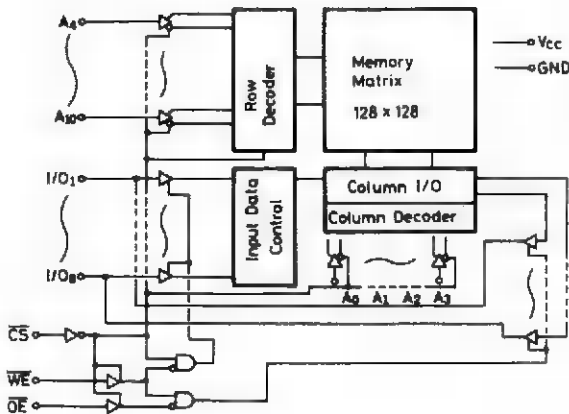
## IC305/306 LPF



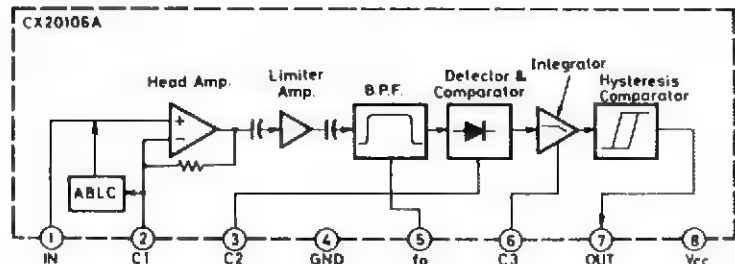
## IC101 Voltage Regulator



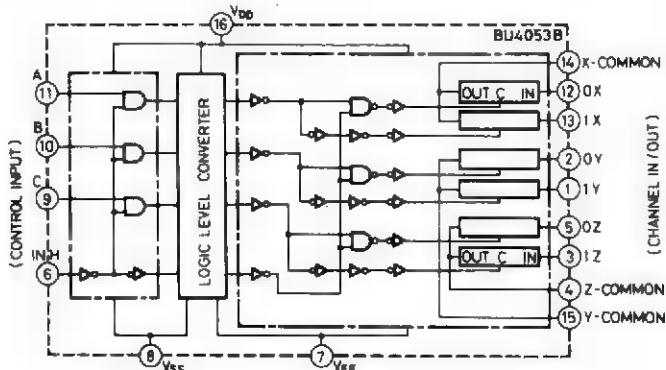
## IC301 Static RAM



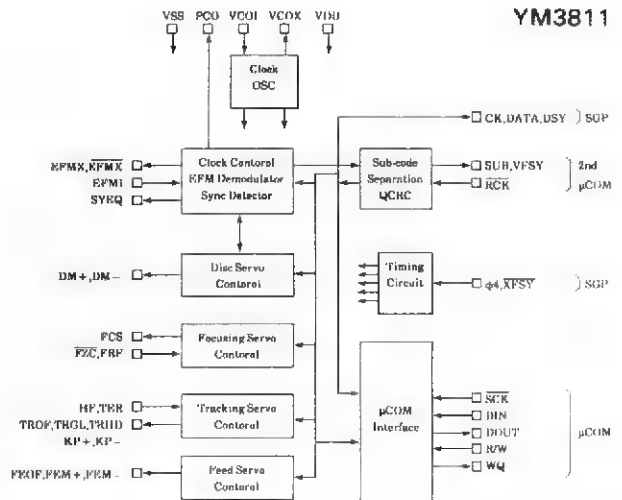
## IC207 Remote Control Sensor



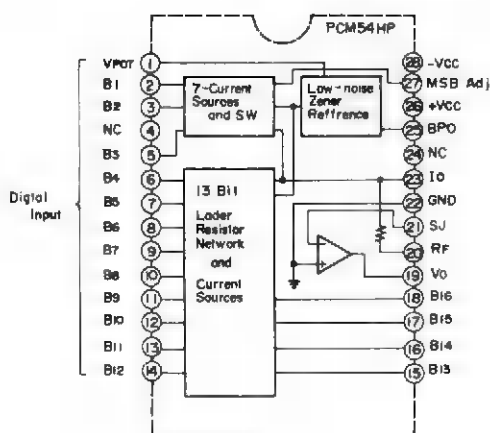
## IC304 Analog Switch Multiplexer



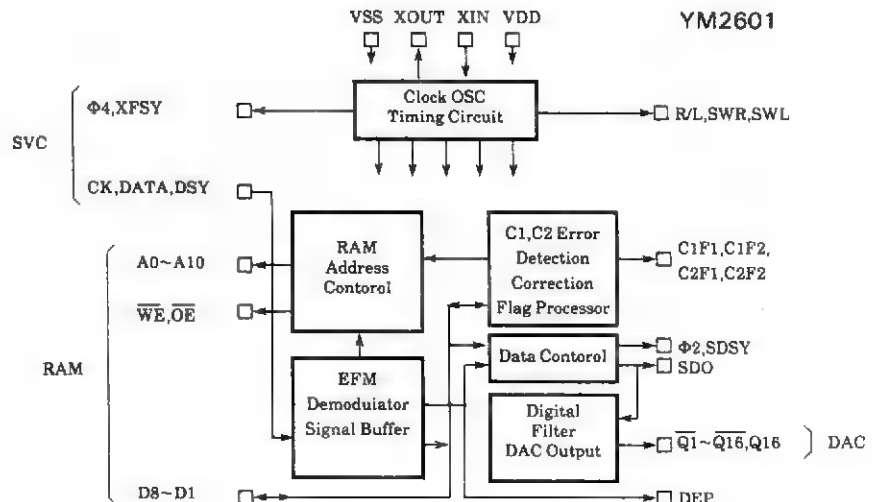
## YM3811



## IC503 Digital Analog Converter



## YM2601

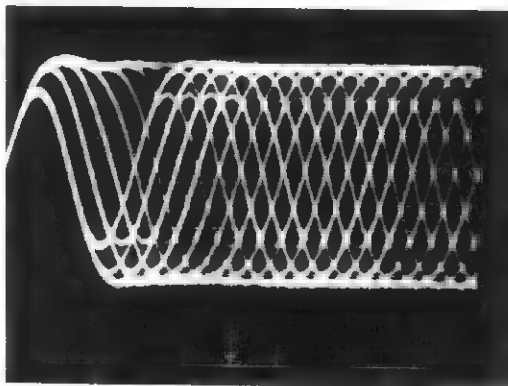




# Important Waveforms

## 1. Eye pattern (RF signal)

TP3 (RF); standard eye pattern.

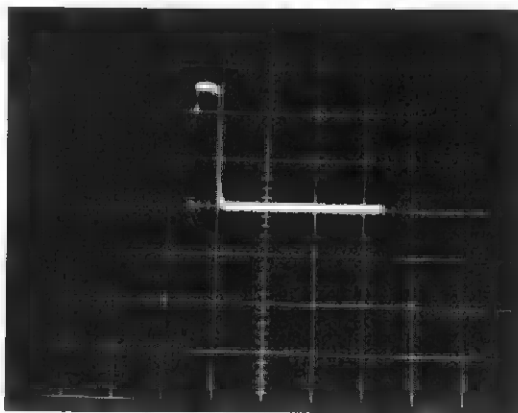


0.5  $\mu$ s/div

0.5 V/div

## 2. Reset signal of microcomputer

Q204 collector

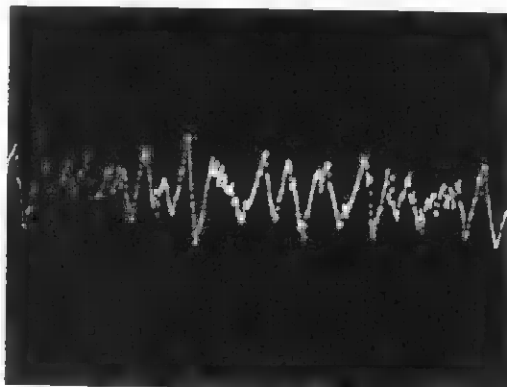


0.5 s/div

2 V/div

## 3. Focus signal during play

Q554 emitter; operates with period of about 0.2 – 1 ms.

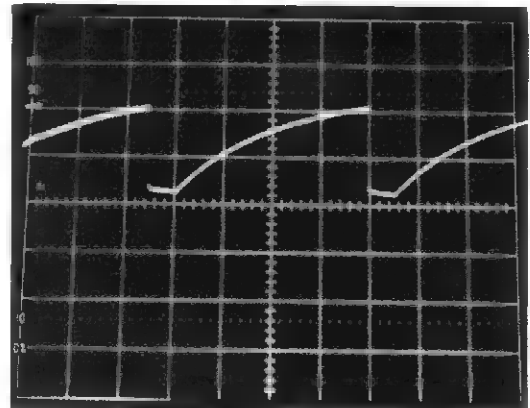


1 ms/div

0.5 V/div

## 4. Focus search voltage

Voltage across C555; the waveform lens is moved up and down by this voltage when the platter is loaded without a disc.



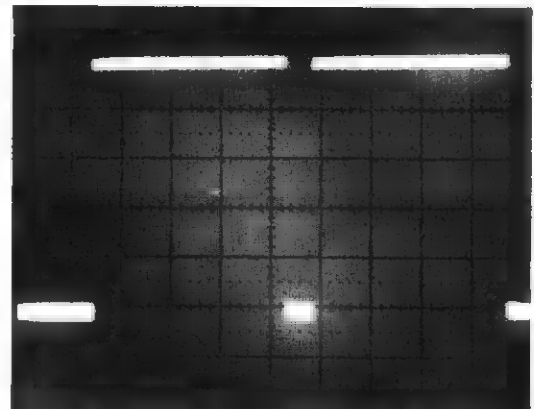
0.5 s/div

2 V/div

## 5. Pulse for focus search voltage

Pulse for focus search transmitted from IC401

IC401 Pin ⑫ FCS signal



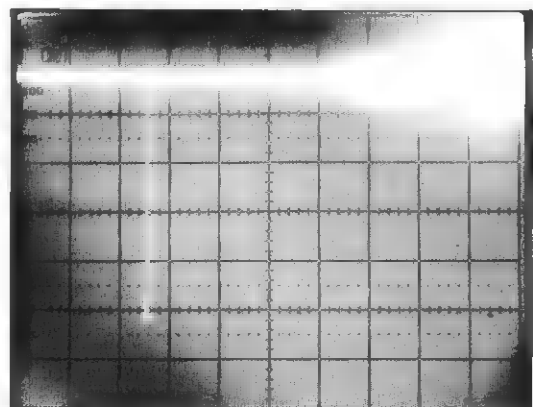
0.5 s/div

1 V/div

## 6. Focus zero-cross output

Pulse showing that focus output waveform has almost passed the zero point.

IC502 Pin ① output



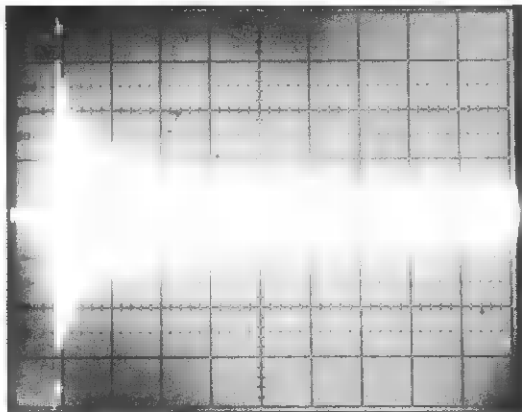
2 ms/div

1 V/div

## 7. Focus drive waveform

Waveform until focus is obtained, spindle motor starts to rotate and TOC is read.\*

Q554 emitter; when focus has been finished and motor starts to rotate

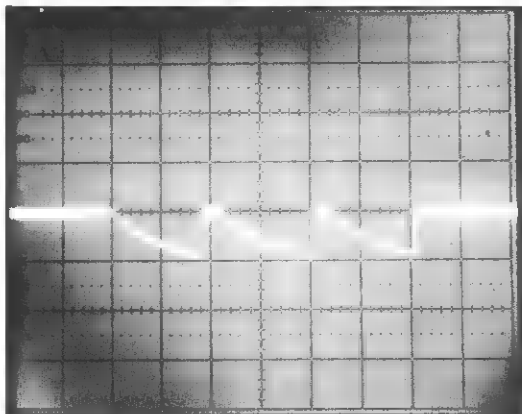


0.2 s/div 0.5 V/div

## 8. Drive waveform during focus search

Drive waveform of focus coil when the platter is loaded without a disc.

Q544 emitter; focus signal when no disc is loaded

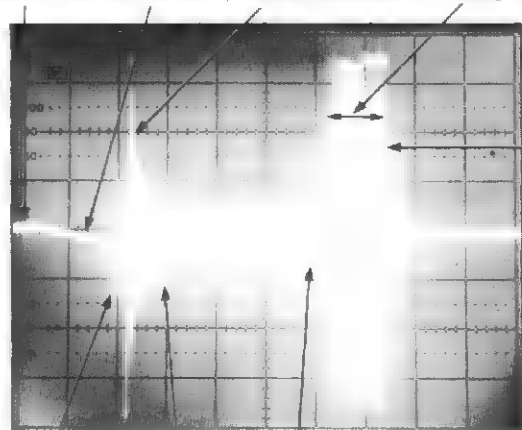


1 s/div 1 V/div

## 9. Waveform until TOC is read

Q554 emitter; until TOC has been read and spindle motor stops

Before lens starts to move up    Lens starts to move up    Spindle motor starts to rotate.    Spindle motor is being braked.

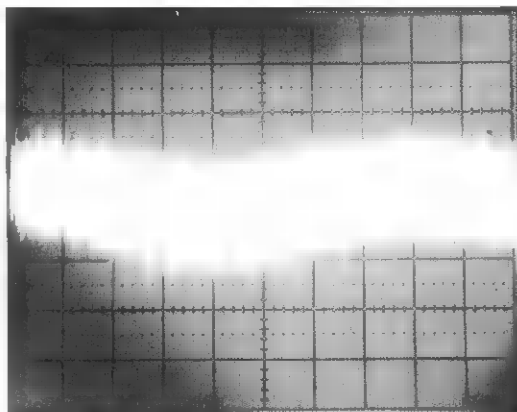


0.5 s/div 2 V/div  
Focus obtained. TOC is being read. TOC has been read.

## 10. Tracking waveform during normal play

Q501 emitter

Waveform during play

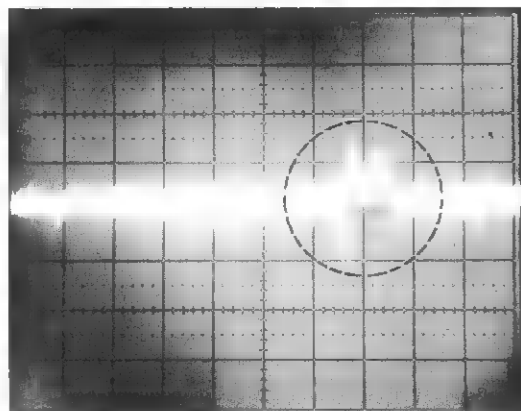


20 ms/div 0.5 mV/div

## 11. TP2 (TE) waveform of high speed search in forward direction

Output when track is jumped is visible

TP2 (TE); in case of transporting in high speed search ►►

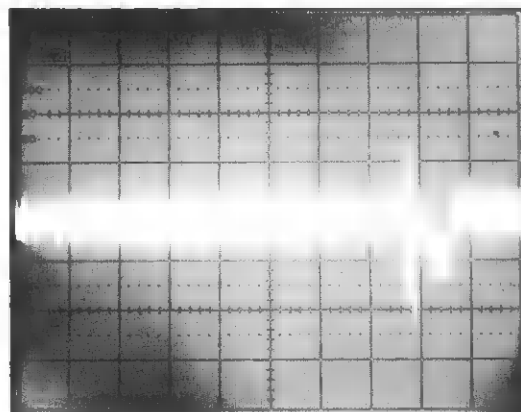


2 ms/div 0.5 V/div

## 12. TP2 (TE) waveform of high speed search in backward direction

The waveform the reverse of that in high speed search in forward direction is shown.

TP2 (TE); in case of returning by high speed search ◄◄



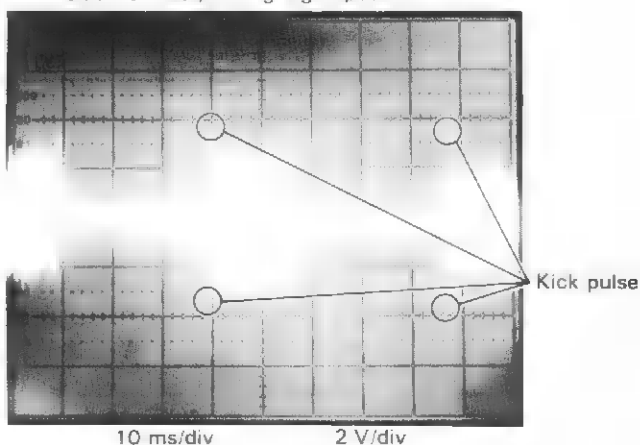
2 ms/div 0.5 V/div

\* TOC : Display words / Mots d'affichage / Anzeigewort

### 13. Drive waveform during high speed search

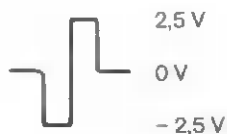
Output such as noise is output when track is crossed.

Q501 emitter; during high speed search

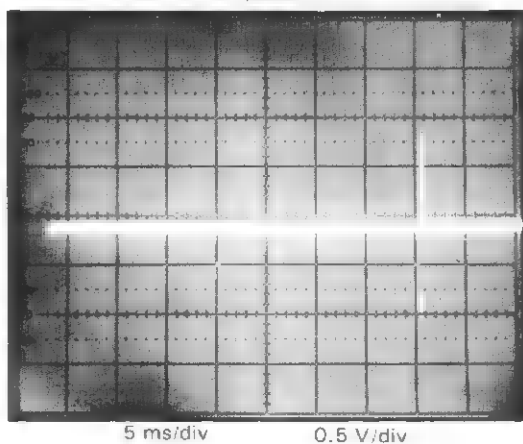


### 14. Kick pulse when searching

When advancing the track, waveform below is output.



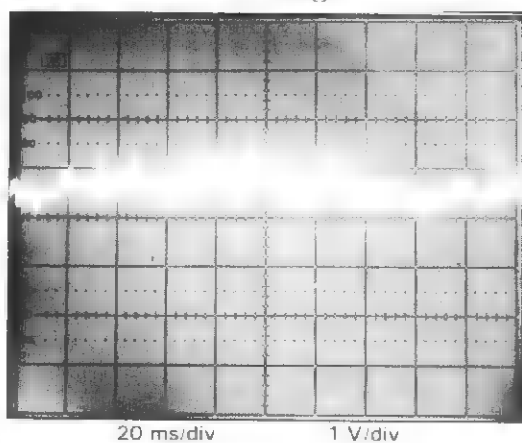
Q501 emitter; Kick pulse when ► is used.



**Note:** Insert the LPF shown below between the test point and the measuring equipment.

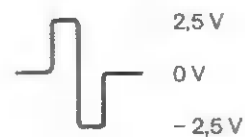
### 15. Spindle motor drive waveform during play

IC801 Pin ⑧

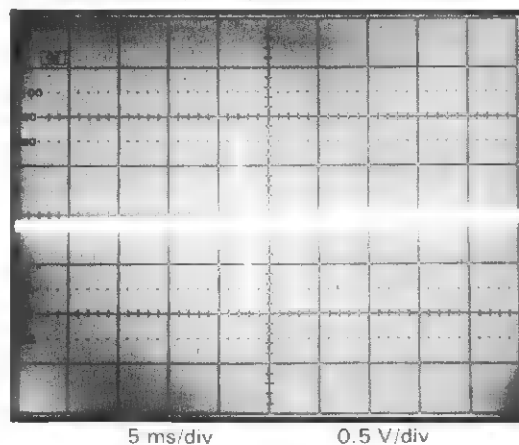


### 16. Kick pulse when searching

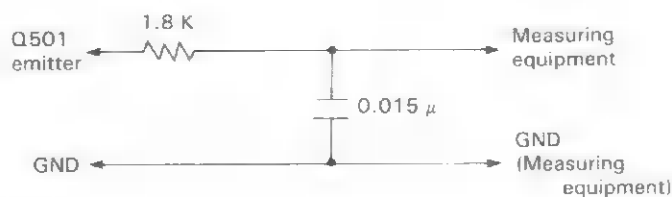
When returning the track, waveform below is output.



Q501 emitter; Kick pulse when ◀ is used.



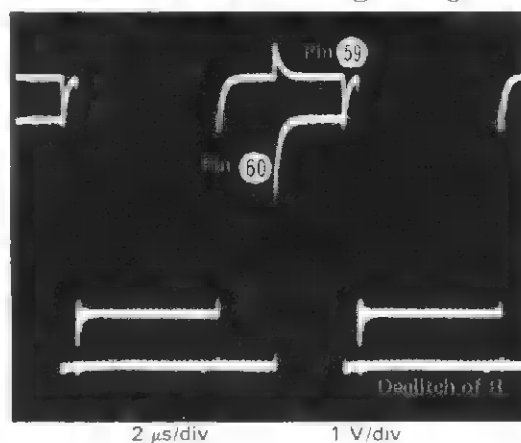
LPF circuit



### 17. L/R switching signal and deglitch signal of R

R deglitch signal (Pin ⑥0) is input when switching signal (Pin ⑤9) is at "H" level.

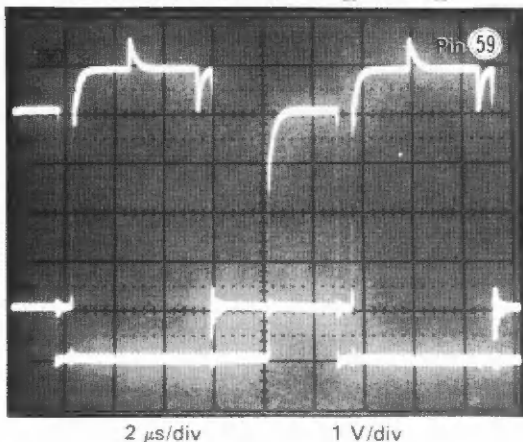
Waveforms of IC302 Pins ⑤9 and ⑥0



# 18. L/R switching signal and deglitch signal of L

L deglitch signal (Pin 61) is input when switching signal (Pin 59) is at "L" level.

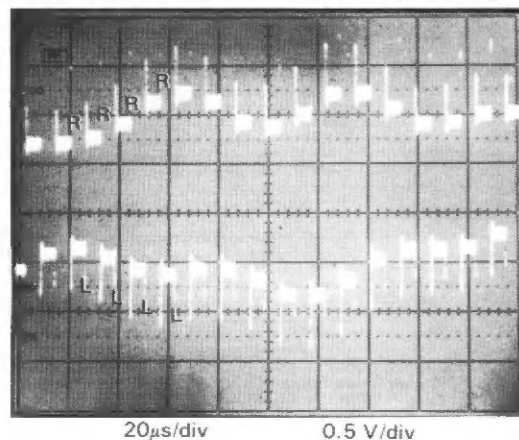
Waveform of IC302 Pins 59 and 61



# 19. AF signal switched after D/A

Waveform showing that R and L are output alternately.

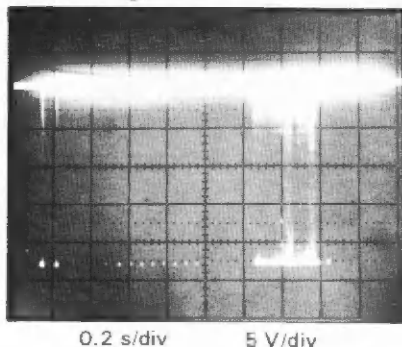
R/L signal switched of IC303 Pins 19 and 20



**Note:** Photos 17 and 18 are shifted by 1 V for better visibility.

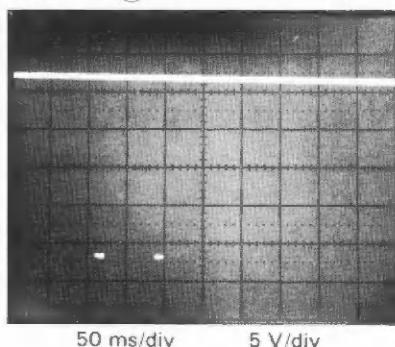
- A** Output waveform of focus zero-cross  
Minus pulse is generated when focus signal passes near zero.

IC502 Pin 1



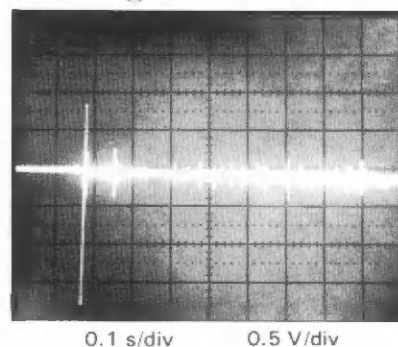
- B** Waveform when focus zero-cross is started to play  
Focus zero-cross signal just before play starts; pulse width is about 10 ms.

IC502 Pin 1



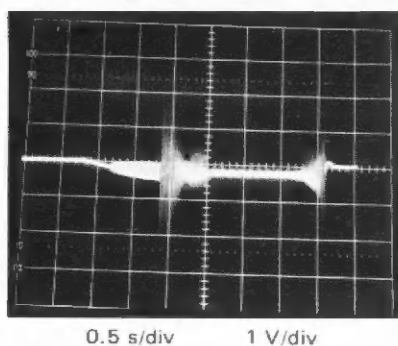
- C** Focus signal when a loaded disc starts to be played  
Strong signal is output when focus starts to be obtained but it becomes of small amplitude when it enters in servo loop.

IC503 Pin 1



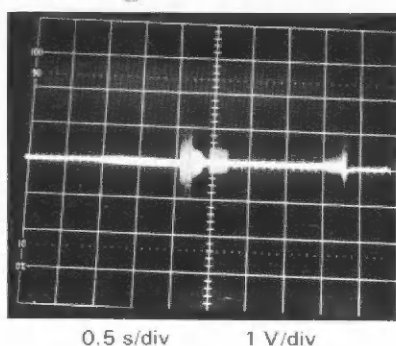
- D** Waveform when a disc is loaded  
Shows until brake is operated after TOC has been read.

IC503 Pin 7



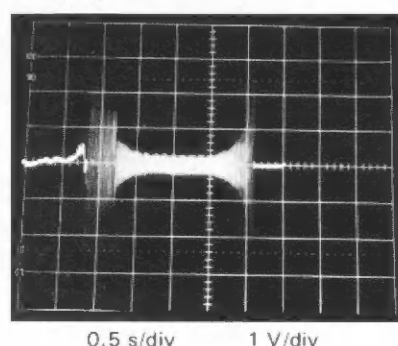
- E** Waveform when a disc is loaded  
Shows until brake is operated after TOC has been read.

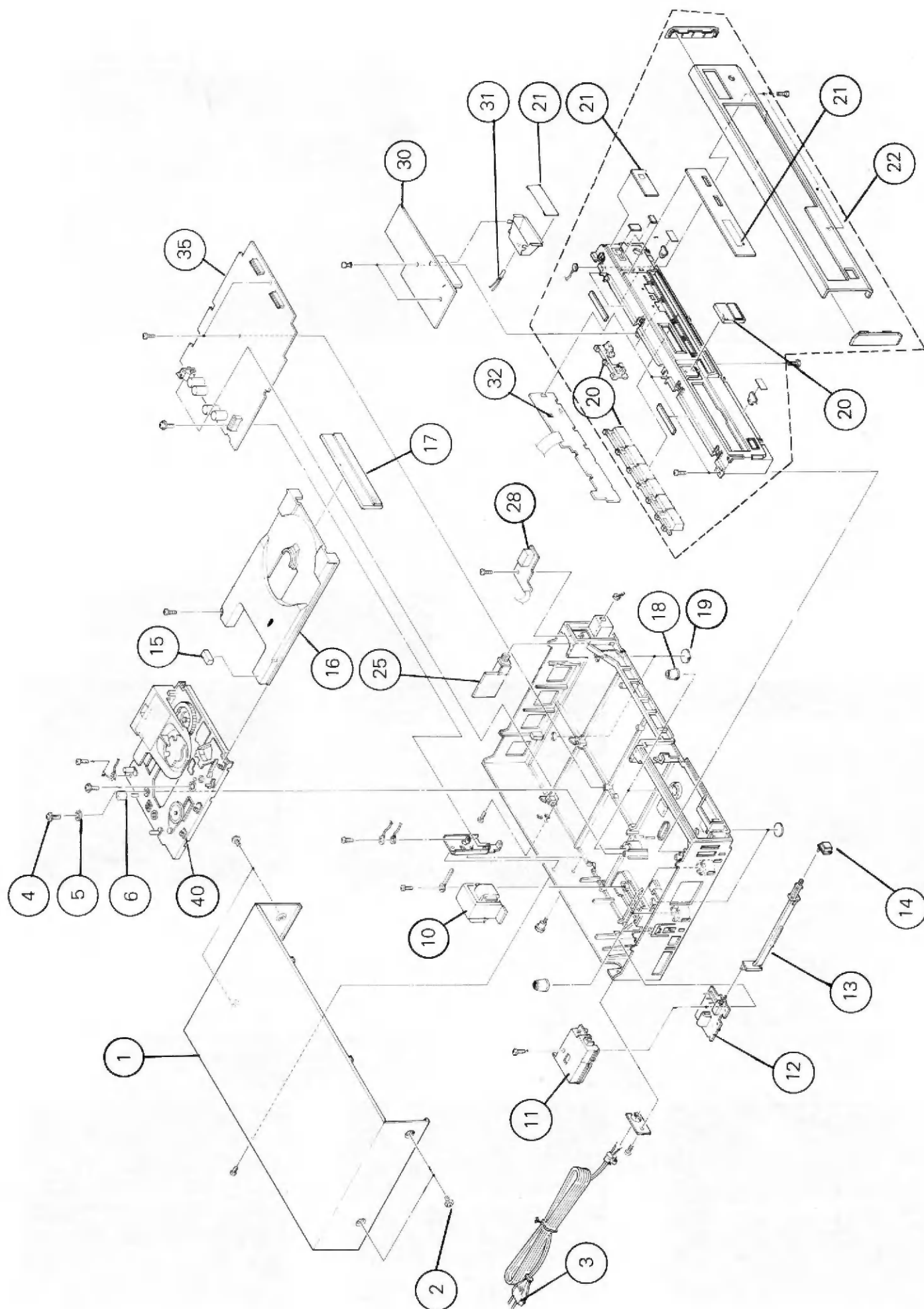
IC502 Pin 14



- F** Waveform when a disc is loaded  
Shows until brake is operated after TOC has been read.

TP2 (TE)





## Ersatzteile · Replacement parts · Pièces détachées · CD 1040

Pos.	Art.-Nr.	Stck	Bezeichnung
1	281 523	1	Gehäuseblech
2	281 545	5	Schraube
3	243 750	1	Netzkabel
4	281 542	1	Schraube
5	281 543	1	Scheibe
6	281 544	1	Distanzrolle
10	281 477	1	Netzrafo
11	281 541	1	Abdeckung
12	281 540	1	<b>Netzplatte</b>
MA 1	281 476	1	Schalter
13	281 533	1	Schaltstange
14	281 535	1	Taste (Power)
15	281 538	1	Distanzstück
16	281 478	1	Plattenhalter
17	281 526	1	Abdeckung
18	281 537	4	Gummidämpfer
19	281 539	4	Fuß
20	281 923	1	Tastensatz
21	281 929	1	Blendensatz
22	281 473	1	Frontblende
25	281 474	1	<b>Kopfhörerplatte</b>
IC 281	274 955	1	IC M 5218 L
P 281	281 475	1	Kopfhörerbuchse
28	281 934	1	<b>IR-Empfängerplatte</b>
D 270	281 513	1	LED SLH 56 VC 32
D 271	281 514	1	LED PH 302 C
IC 270	281 512	1	IC CX 20106 A
30	281 935	1	<b>Anzeigeplatte</b>
31	281 472	1	Anzeigelampe
D 203	281 494	5	Diode 1 SS 133 HV
D 204	281 494	5	Diode 1 SS 133 HV
D 205	281 494	5	Diode 1 SS 133 HV
D 206	281 494	5	Diode 1 SS 133 HV
D 207	281 494	5	Diode 1 SS 133 HV
Q 204	281 505	1	Transistor 2 SA 933 S
R 204	281 920	1	Steller 4,7 kΩ
IC 201	281 510	1	IC UPD 7514 G
IC 202	281 511	1	IC UPD 7564
LC 201	281 509	1	Anzeige
OS 250	281 515	1	Keramikfilter 700 kHz
32	281 936	9	<b>Tastenplatte</b>
SW 201	281 516	9	Microschalter
bis			
SW 209	281 516	9	Microschalter
35	281 524	1	<b>Grundplatte</b>
D 101	281 491	1	Diode S1VB 20
D 102	281 492	1	Diode S1WB 20
D 103	281 493	2	Diode BZX 79 C 13
D 104	281 493	2	Diode BZX 79 C 13
D 105	266 950	1	Diode RD 12 EB
D 351	281 494	3	Diode 1 SS 133 HV
D 352	281 494	2	Diode 1 SS 133 HV
D 401	281 495	1	Diode MTZ 5,1 B
D 402	281 496	1	Diode SVC 321-AWAA2
D 701	281 494	3	Diode 1 SS 133 HV
L 401	281 479	1	Spule
P 301	281 922	1	Cinchbuchse
Q 101	281 502	1	Transistor 2 SD 1505 F
Q 103	269 095	1	Transistor 2 SC 2060 Q
Q 104	281 504	1	Transistor 2 SA 934 R
Q 351	281 505	4	Transistor 2 SA 933 S
Q 401	274 774	7	Transistor 2 SD 1302 T
Q 451	274 774	7	Transistor 2 SD 1302 T
Q 501	281 506	2	Transistor 2 SD 400 E
Q 502	281 507	2	Transistor 2 SB 544 E
Q 503	274 774	7	Transistor 2 SD 1302 T
Q 504	274 774	7	Transistor 2 SD 1302 T

Pos.	Art.-Nr.	Stck	Bezeichnung
Q 506	281 505	4	Transistor 2 SA 933 S
Q 552	274 774	7	Transistor 2 SD 1302 T
Q 553	281 505	4	Transistor 2 SA 933 S
Q 554	281 506	2	Transistor 2 SD 400 E
Q 555	281 507	2	Transistor 2 SB 544 E
Q 601	273 842	1	Transistor 2 SC 535 C
Q 602	247 645	1	Transistor 2 SC 458 D
Q 603	281 508	1	Transistor 2 SA 1029 C
Q 651	281 505	4	Transistor 2 SA 933 S
Q 652	269 146	2	Transistor 2 SC 1740 S
Q 653	269 146	2	Transistor 2 SC 1740 S
Q 803	274 774	7	Transistor 2 SD 1302 T
R 101	281 501	2	Sicherungswiderstand 10/5%/1W
R 102	281 501	2	Sicherungswiderstand 10/5%/1W
R 505	281 920	2	Steller 4,7 kΩ
R 509	281 498	1	Steller 220 kΩ
R 521	281 920	2	Steller 4,7 kΩ
R 555	281 499	1	Steller 100 kΩ
CP 101	281 480	2	Schutzschaltung ICP-N20T1
CP 102	281 480	2	Schutzschaltung ICP-N20T1
IC 101	271 075	1	IC NJM 78 M 05 A
IC 301	281 481	1	IC HM 6116 ASP-20
IC 302	281 482	1	IC YM 2601 K
IC 303	281 483	1	IC PCM 54 HP
IC 304	281 484	1	IC BU 4053 B
IC 305	281 485	2	IC BX 7347 C
IC 306	281 485	2	IC BX 7347 C
IC 401	281 486	1	IC YM 3811
IC 402	281 487	1	IC M 5209 L
IC 501	281 488	1	IC NJM 072 S
IC 502	281 489	1	IC NJM 2901 N
IC 503	274 955	3	IC M 5218 L
IC 504	274 955	3	IC M 5218 L
IC 801	281 490	1	IC STA 341 M
IC 851	274 955	3	IC M 5218 L
QS 301	281 500	1	Quarz 8,6436 MHz
RA 601	281 497	1	Widerstandsnetzwerk 4 x 4,7
40	281 517	1	<b>CD-Laufwerk</b>
41	281 518	1	Andruckarm
42	281 551	1	Plattenteller
43	281 549	2	Riemen
44	281 503	1	Antriebsrolle
45	281 918	1	Antriebsrad
46	281 916	1	Achse
47	281 919	1	Zwischenrad
48	281 522	1	Motor
49	281 548	1	Schalter
50	281 521	1	Discmotor
51	281 547	1	Abdeckung
52	281 905	2	Mutter
53	281 911	1	Haltewinkel
54	281 914	1	Achse
55	281 932	1	CD-Pickup
57	281 546	1	Zwischenrad
58	281 912	1	Pickup Support
59	281 917	1	Mutter
60	281 915	1	Feder
61	281 520	1	Schalter
65	281 907	1	Zwischenrad
66	281 906	1	Schraube
67	281 904	1	Haupttrad
68	281 913	1	Feder
69	281 550	1	Antriebsrad
70	281 908	1	Antriebsritzel
72	281 909	1	Zwischenrad
73	281 910	1	Hebel
74	281 519	1	Motor (Schlitten)
80	281 921	1	<b>RC 1040 Fernbedienung</b>
	226 817	1	Cinchkabel
	280 881	1	Bedienungsanleitung CD 1040
	281 933	1	Verpackung kpl.

Änderungen vorbehalten! Subject to change! Sous réserve de modification!

